

REMARKS

Claims 1-7 and 9-53 are pending in this application. Claims 1, 9, 18, 21, 27, 32, 38, 44 and 49 are independent. Claims 1-53 are amended to correct their form. Claims 8, have been canceled.

The Office Action objects to claims 1-53 for various informalities. In particular: (1) claim 1 is objected to because it recites “In combination for...”; (2) claim 32 is objected to “In a method for...”; (3) claim 30 is objected to because it is a method claim that depends from an apparatus claim; and (4) claim 7 is objected to because the use of the words “to obtain” and “to provide” is allegedly ambiguous. Applicant has amended claims 1-53 to correct their form in accordance with suggestions provided by the Examiner, thereby obviating these objections.

Rejection Under 35 U.S.C. 102(e)

The Office Action rejects claims 1, 2, 18, 19 and 32-53 under 35 U.S.C. 102(e) as being anticipated by Koenck et al. U.S. Patent No. 6,931,095 (“Koenck”).

The present invention provides an x-ray pallet processing system and method for irradiating pallets that cannot be irradiated by conventional techniques throughout their complete volumes. In one embodiment, a scan horn scans electron beamlets through a sweep angle and a dipole bends the electron beamlets to focus the electron beamlets at the pallet center. After being bent, the beam is converted to x-rays that are irradiated through the pallet to the pallet center. During irradiation, the pallet is moved in a direction substantially perpendicular to the irradiation such that one quarter of the pallet is irradiated in the first pass. When the quadrant radiation is

completed, the radiation is interrupted and the pallet is rotated 90 degrees to irradiate the next quadrant. The operation is sequentially repeated for each of the four pallet sides, which define the pallet's complete cross-sectional area.

Koenck teaches an irradiation assembly for irradiating large articles that are up to about 48 inches thick. The assembly provides radiation to an article from all sides in a 360-degree exposure range. A conveying system carries the article through at least one irradiating subsystem in a number of passes appropriate to provide x-ray radiation to the article in the full 360 degree exposure range. An accelerator generates an electron beam, and a magnet assembly shapes and deflects the electron beam in a sweep path through a scan horn, and an x-ray conversion plate converts the electron beam into an x-ray radiation beam.

Independent claim 1 recites *a motor having first and second states of operation for rotating the pallet on an axis substantially corresponding to the second plane during the second state of the source of radiation*. Koenck fails to teach the use of a motor for rotating the pallet during a second state of the source of radiation. In addition, Applicant has amended claim 1 to further recite that the motor rotates the pallet through a particular angle each time that the source of radiation and the holder are in the second state. Koenck clearly fails to disclose a motor that rotates the pallet through a particular angle each time the source of radiation and the holder are in a second state. For these reasons, Koenck fails to anticipate claim 1, and claims 2-7, which depend therefrom.

Independent claim 9 recites *a system for irradiating a pallet, including a magnetic lens for focusing the radiation at a particular position in the pallet*. Koenck fails to teach the use of a magnetic lens for focusing the radiation at a particular position in the pallet. Instead, Koenck

teaches the use of a bending magnet assembly 64 that redirects the electrons received from deflection magnet 56 at an angle. Since Koenck fails to disclose the use of a magnetic lens, it fails to anticipate claim 9, and claims 10-17, which depend therefrom.

Independent claim 18 recites *a system for irradiating a pallet, including a drive member for rotating the pallet through a particular angle, with the source of x-rays not being energized, to the pallet after the irradiation of the first portion of the pallet, the source of radiation being thereafter operative to energize another portion of the pallet, with the pallet non-rotary, and to focus the radiation from the source toward the center of the pallet.* Koenck does not disclose the use of a drive member for rotating the pallet through a particular angle, with the source of x-rays not being energized, to the pallet after the irradiation of the first portion of the pallet, the source of radiation being thereafter operative to energize another portion of the pallet, with the pallet non-rotary, and to focus the radiation from the source toward the center of the pallet. For this reason, Koenck fails anticipate claim 18, and claims 19 and 20, which depend therefrom.

Independent claim 21 recites *a scan horn and a dipole magnet constructed and disposed relative to each other to irradiate, with the radiation from the source, a portion of the pallet defined by the center of the pallet, one of the opposite extremities of one side of the pallet and a median position in the side of the pallet.* Koenck fails to teach a scan horn and a dipole magnet constructed and disposed to irradiate a portion of the pallet defined by the center of the pallet, one of the opposite extremities of one side of the pallet and a median position in the side of the pallet. For this reasons, Koenck fails to anticipate claim 21, and claims 22-26, which depend therefrom.

Independent claim 27 recites *a control system for initially providing for a radiation from the source to the pallet without any rotation of the pallet, then for a rotation of the pallet relative to the magnetic members and then for another radiation from the radiation source to the pallet without any rotation of the pallet.* Koenck fails to teach the use of a control system for rotating the pallet relative to magnetic members and then another rotation from the radiation source to the pallet without rotation of the pallet. Since Koenck fails to disclose such a control system, it fails to anticipate claim 27, and claims 28-31, which depend therefrom.

Independent claim 32 recites *a method of irradiating a pallet, comprising directing radiation in a first plane from a source to the pallet, providing a magnetic lens to focus the radiation in the first plane at a central position in the pallet while the radiation is directed to the pallet, and moving the pallet past the radiation in a direction substantially perpendicular to the first plane during the direction of the radiation from the source to the pallet.* As discussed hereinabove with respect to claims 9, Koenck fails to teach the use of a magnetic lens for focusing the radiation at a particular position in the pallet. Instead, Koenck teaches the use of a bending magnet assembly 64 that redirects the electrons received from deflection magnet 56 at an angle. Since Koenck fails to disclose a method featuring the use of a magnetic lens, it fails to anticipate claim 32, and claims 33-37, which depend therefrom.

Independent claim 38 recites a system comprising *a scan horn for scanning charged particles through a particular angle in a particular plane, a dipole for bending the charged articles to extend in a particular direction through the pallet, and a converter for converting the charged particles to x-rays and directing the x-rays in the particular direction through the pallet.* Koenck fails to teach a dipole for bending the charged articles to extend in a particular direction

through the pallet. In addition, Koenck does not teach a converter for converting the charged particles to x-rays and directing the x-rays in the particular direction through the pallet. For these reasons, Koenck fails to anticipate claim 38, and claims 39-43, which depend therefrom.

Independent claim 44 recites *a method of irradiating a pallet, comprising the steps of providing radiation in a first direction, scanning the radiation in a second direction substantially perpendicular to the first direction, moving the pallet in a third direction substantially perpendicular to the first and second directions, and converging the scanned radiation to focus the radiation at a particular position in the pallet during the movement of the pallet in the third direction.* Koenck fails to teach a method including moving the pallet in a third direction perpendicular to the direction of radiation (first direction) and scanning direction (second direction). For this reasons, Koenck fails to anticipate claim 44, and claims 45-47, which depend therefrom.

Independent claim 49 recites *a method of irradiating, comprising the steps of: (a) providing radiation in a first direction, (b) scanning the radiation in a second direction substantially perpendicular to the first direction, (c) operating on the scanned radiation to pass the radiation through a first one of the sides of the pallet to a position at the center of the pallet, (d) moving the pallet in a third direction substantially perpendicular to the first and second directions during the operation of steps (a)-(c) specified above, (e) preventing radiation from the source from reaching the pallet, (f) rotating the pallet on an axis corresponding to the third direction to a position wherein a second one of the sides has the previous position of the first one of the sides, (g) repeating the steps (a)-(c) specified above, and (h) moving the pallet in a direction opposite to the third direction during the operation of step (g).* Koenck fails to teach at

least the following claim limitations: (1) moving the pallet in a third direction substantially perpendicular to the first and second directions; (2) preventing radiation from the source from reaching the pallet; and (3) rotating the pallet on an axis corresponding to the third direction to a position wherein a second one of the sides has the previous position of the first one. For these reasons, Koenck fails to anticipate claim 49, and claims 50-53, which depend therefrom.

In view of the above, Applicants' respectfully request withdrawal of the rejection of claims 1-53 under 35 U.S.C. 102(e).

Conclusion

It is believed this amendment now has placed the application in condition for consideration and allowance. If necessary, the Commissioner is hereby authorized in this and concurrent replies to charge payment (or credit any overpayment) to Deposit Account No. 50-0683 of Luce, Forward, Hamilton & Scripps.

Respectfully submitted,

9-28-05

Date



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